

## ABSTRACT OF THE DISCLOSURE

Improved methods for conducting solid acid-catalyzed, near- or supercritical heterogeneous chemical reactions (e.g., alkylation reactions) are provided which give enhanced product yields and permit longer processing runs. The preferred reactions of the invention are carried out  
5 in the presence of a solid macroporous catalyst having a surface area of from about 50-400 m<sup>2</sup>/g and a pore size of from about 70-150Å. Product selectivity is enhanced by pressure-tuning of the reaction to promote production and separation of desired reaction products. In continuous processing, the chemical reaction may be interrupted before significant catalyst deactivation, followed by increasing reactor pressure and/or reducing reactor temperature to remove the  
10 accumulating coke; when the catalyst is regenerated, the original reaction conditions and reactant introduction may be resumed.